SEW EURODRIVE

Low Backlash Planetary Gear Units

Edition

10/2002

Operating Instructions

1054 4410 / EN

SEW
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1 Important Notes

Safety and warning instructions

Always follow the safety and warning instructions contained in this publication!

Hazard
Possible consequences: Severe or fatal injuries.

Hazardous situation
Possible consequences: Slight or minor injuries.

Harmful situation
Possible consequences: Damage to the drive and the environment.

Tips and useful information.

A requirement of fault-free operation and fulfillment of any rights to claim under guarantee is that you adhere to the information in the operating instructions. Consequently, read the operating instructions before you start operating the drive!

The operating instructions contain important information about servicing; as a result, they should be kept in the vicinity of the unit.

Waste disposal

Please follow the latest instructions:

- Housing parts, gears, shafts and anti-friction bearings of the gear units must be disposed of as steel scrap. The same applies to gray cast iron castings unless there are separate collection arrangements.
- Collect waste oil and dispose of it correctly.

2 Safety Notes

Preliminary remarks

The following safety notes are principally concerned with the use of gear units.

When operating **geared motors**, please also refer to the safety notes for motors in the corresponding operating instructions.

General information

During and after operation, geared motors and gear units have live and moving parts and their surfaces may be hot.

All work related to transportation, putting into storage, setting up/mounting, connection, startup, maintenance and repair should only be performed by trained personnel observing

- **the corresponding detailed operating instruction(s) and wiring diagrams,**
- **the warning and safety signs on the gear unit/geared motor,**
- **the specific regulations and requirements for the system and**
- **national/regional regulations governing safety and the prevention of accidents.**

Severe injuries and damage to property may result from

- incorrect use,
- incorrect installation or operation,
- removal of required protective covers or the housing when this is not permitted.

Designated use

These geared motors/gear units are intended for industrial systems. They correspond to the applicable standards and regulations. The technical data and the information about permitted conditions can be found on the nameplate and in the documentation.

It is essential to observe all specified information!

Transportation / putting into storage

Inspect the delivery for any damage in transit as soon as you receive the delivery. Inform the shipping company immediately. It may be necessary to preclude startup.

Use suitable, sufficiently rated handling equipment if necessary. Remove any transportation fixtures prior to startup.

Store the gear unit in a dry, dust-free place if it is not going to be installed right away.

3 Setup and Installation

3.1 Before you begin

The drive may only be installed if

- the entries on the nameplate of the drive match the voltage supply system,
- the drive is undamaged (no damage caused by transportation or storage) and
- it is certain that the following requirements have been fulfilled:

– **with standard gear units:** ambient temperature between -10° C and +60° C, no oil, acid, gas, vapors, radiation, etc.

– **with special versions:** drive configured in accordance with the ambient conditions.

3.2 Required tools / resources

- Set of spanners
- Torque wrench (+ set of screwdrivers with a long hexagonal driver)
- Mounting device
- Shims and distance rings if necessary
- Fastening devices for input and output elements
- Lubricant (e.g. NOCO® fluid)

3.3 Preliminary work

The output shafts and flange surfaces of the motor to be mounted must be thoroughly cleaned of anti-corrosion agents, contamination or such like (use a commercially available solvent). Do not let the solvent come into contact with the sealing lips of the oil seals – danger of damage to the material!

3.4 Installing the gear unit

The gear unit or geared motor may only be mounted or installed in the specified mounting position on a level[1], vibration damping and torsionally rigid support structure. Use plastic inserts (2 – 3 mm thick) if there is a risk of electrochemical corrosion between the gear unit and the driven machine (connection between different metals such as cast iron and high-grade steel)! Also install the bolts with plastic washers. Ground the housing additionally – use the grounding bolts on the motor.

1. Maximum permitted flatness error for flange mounting (approximate values with reference to DIN ISO 1101): with flange 120 – 600 mm max. error 0.2 – 0.5 mm

3.5 Installation in the machine

PSE gear unit: Screw fitting from machine side

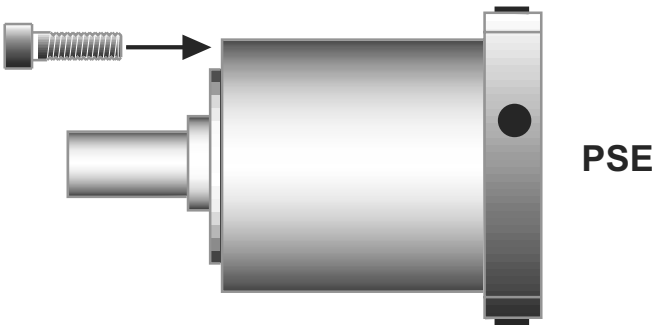

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Fig. 1: Installation of PSE gear unit in the machine

PSF gear unit: Screw fitting from gear unit side

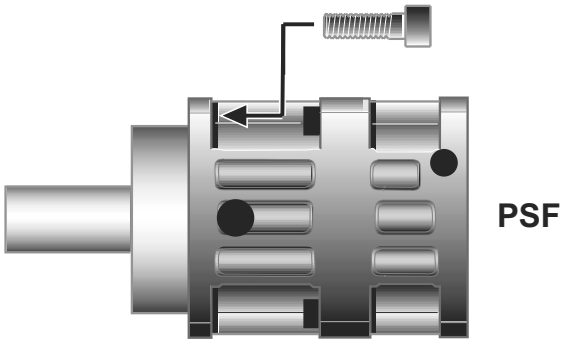

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Fig. 2: Installation of PSF gear unit in the machine

PSB gear unit: Screw fitting from machine and gear unit side

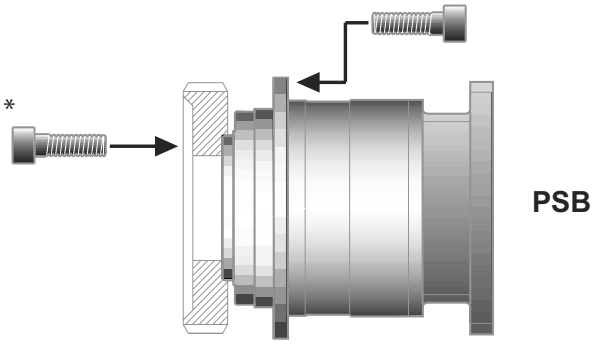

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Fig. 3: Installation of PSB gear unit in the machine

* Use high-strength bolts in strength class 10.9 to DIN ISO 898 P.1 only.

3.6 Mounting output elements

Fig. 3 shows a sample mounting device for installing couplings (3) or hubs onto motor or gear unit shaft extensions (4). It may be possible to dispense with the thrust bearing (2) on the mounting device.

Use only high-strength bolts 12.9 to DIN ISO 898 P.1 when mounting input and output elements on the normal flange of **PSB series units**.

When mounting input and output elements on **PSF series units**, the **shaft nut** on the input and output shaft **must not be used as a stop** for transmission elements (belt pulley, pinion gear, etc.).

When mounting input and output elements on **PSE series units**, the **shaft shoulder** (see Fig. 5, no. 1) **may** be **used** as a defined **stop point**.

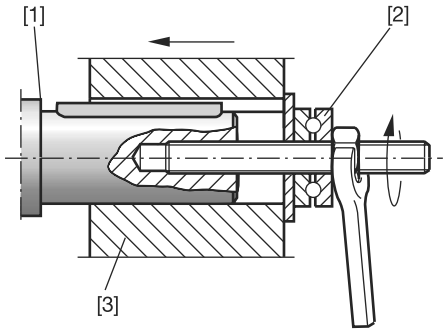

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Fig. 4: Mounting device

[1] Shaft shoulder

[2] Thrust bearing

[3] Coupling hub

The following illustration shows the correct mounting arrangement of a gear or chain sprocket to avoid excessively high overhung loads.

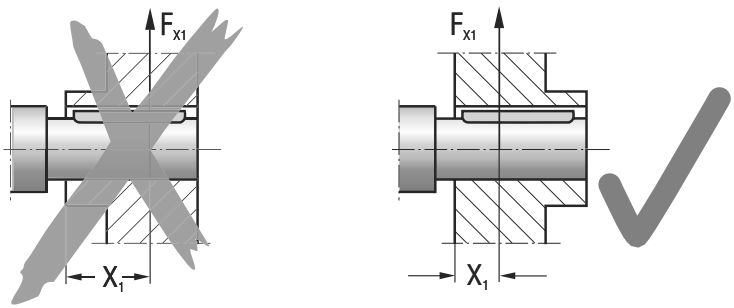

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Fig. 5: Mounting arrangement of a gear or sprocket

- Use a mounting device (see Fig. 5) for installing input and output elements. Use the center bore and the thread on the shaft end for positioning purposes.
- **Never drive belt pulleys, couplings, pinions, etc. onto the shaft end by hitting them with a hammer (damage to bearings, housing and the shaft!).**
- **In the case of belt pulleys, make sure the belt is tensioned correctly (in accordance with the manufacturer's instructions).**
- Transmission elements should be balanced after fitting and must not give rise to any impermissible radial or axial forces (see Fig. 5 / for permitted values, see the "Low Backlash Planetary Gear Units" catalog, publication no. 1051 4244).

Input and output elements such as belt pulleys, couplings, etc. must be equipped with a touch guard!

Mounting is easier if you first apply lubricant to the bore in the output element or heat up the output element briefly (to 80 – 100° C).

Mounting couplings

Couplings must be mounted and balanced according to the information provided by the coupling manufacturer:

A Maximum and minimum clearance

B Axial misalignment

C Angular misalignment

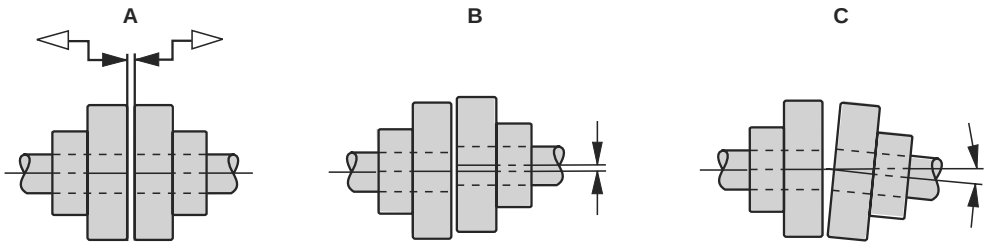

Fig. 6: Maximum/minimum clearance (A), axial misalignment (B), angular misalignment (C)

3.7 Motor mounting with EK coupling

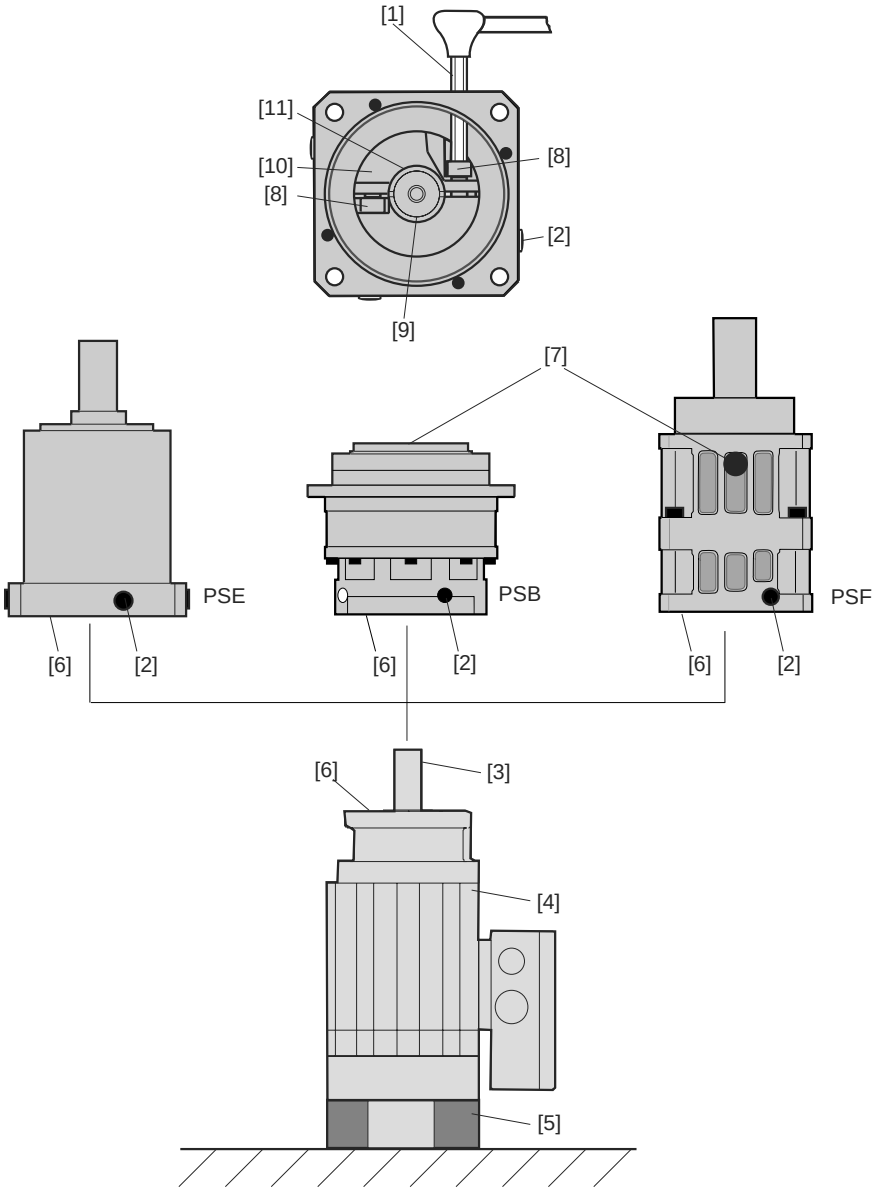

Fig. 7: Motor mounting with EK coupling

[1] Torque wrench
[2] Closing plug
[3] Motor shaft
[4] Motor
[5] Ring
[6] Smooth surface
[7] Oil screw plug
[8] Clamping bolt
[9] Coupling sleeve
[10] Clamping ring
[11] Coupling

Proceed in this order:

- Place **motor (4) vertically** (motor must have a minimum true-running accuracy to EN 42955N). Use ring (5) to protect the encoder and other mounted components. In the case of a gear unit with reduced backlash, we recommend true-running accuracy values to EN 42955R.
- Check smooth surfaces (6) of the motor and gear unit for scoring and smoothen them if necessary. Clean and degrease the hollow shaft bore in the coupling (11) and motor shaft (3).
- Remove one or two of the four closing plugs (2). Turn the coupling (11) with clamping ring (10) until the bolt head of clamping bolt(s) (8) is in alignment with the mounting bore in the built-on housing. Unscrew the clamping bolt(s) (8). **Motors with a keyway:** Turn the keyway 90° offset in relation to the slot in the coupling. We recommend placing half a key in the keyway in order to compensate for the imbalance.

All gear units have only one clamping bolt (8) except for types PSF/PSE 21.. and PSF/PSB/PSE 31.. with a motor shaft diameter > 14 mm.

- If coupling sleeves (9) are used, make sure that the slots in the coupling sleeve (9) are in alignment with the slots in the coupling (11) and clamping ring (10). Carefully slide the gear unit onto the motor shaft (3).

Never drive gear units, couplings, etc. onto the shaft end by hitting them with a hammer (damage to bearings, housing and the shaft).

- Insert bolts between the gear unit and motor and tighten them evenly, working diagonally across. Make sure the three oil screw plugs (7) can be accessed later. The oil screw plugs are located on the top and bottom of the gear unit and on one side.

Gear unit types PSE, PSF 21.. and PSF 31.. do not have any oil screw plugs. Gear unit type PSB has one oil screw plug (7) in the center of the flange block.

- Use a torque wrench (1) to tighten the clamping bolt(s) (8) to the prescribed tightening torque.

Gear unit type	Motor shaft diameter [mm]	Number of clamping bolts	Tightening torque of clamping bolt [Nm]	Wrench size
PSF 21./31. PSB 31. PSE 21./31.	≤ 14	2	14	5
PSF 21./31. PSB 31. PSE 21./31.	> 14	1	41	6
PSF 41. – PSF 90. PSB 41. – PSB 61. PSE 41. – PSE 61.	≤ 32	1	41	6
PSF 41./51./61./70./80./90. PSB 41./51./61. PSE 41./51./61.	> 32	1	83	8

4 Startup

4.1 Starting operation of low backlash planetary gear units

Check to make sure that the direction of rotation is correct in the disengaged state (also listen for unusual grinding noises as the shaft rotates).

Secure the shaft keys for test operation without drive components. Do not render monitoring and protection equipment inoperative even for test operation.

Switch off the geared motor whenever you notice deviations from normal operation, such as increased temperature, noise and vibration. Determine the cause and contact SEW if necessary.

5 Inspection and Maintenance

PSF/PSB/PSE gear units have lubrication for life.

Do not mix the factory-fill lubricant with other lubricants.

In the case of synthetic lubricant, we recommend an oil change approx. every 10,000 operating hours.

Inspection and maintenance periods

Look and check the unit at regular intervals. Please contact our customer service if you discover any leaks.

Changing the oil

Only change the oil when the gear unit is at operating temperature.

1. **De-energize the geared motor and secure it to prevent it from being switched back on inadvertently!**

   Wait until the gear unit cools down – Danger of burns!

   Note: The gear unit must still be warm since the high viscosity of excessively cold oil will make it harder to drain the oil correctly.
2. Remove the gear unit and place it on a level surface. The oil drain plug should be pointing downwards.
3. Place a container underneath the oil drain plug.
4. Remove the oil level screw, breather plug/breather valve and oil drain plug.
5. Drain all the oil.
6. Screw in the oil drain plug.
7. Fill new oil through the vent hole. Use oil from the same manufacturer and of the same type (see Sec. "Lubricants").
   - Pour in the quantity of oil in accordance with the mounting position (see Sec. "Lubricants") or as stated on the nameplate.
   - Check the oil level at the oil level plug.
8. Screw in the oil level plug and breather plug/breather valve.
9. Install the gear unit.

6 Operation and Service

6.1 Troubleshooting

Fault	Possible cause	Solution
Unusual, regular running noise	• Meshing/grinding noise: Bearing damage • Knocking noise: Irregularity in the gearing	Contact customer service
Oil leaking	Seal defective	Contact customer service

If you require assistance from our customer service staff, please state the following:

- Nameplate data
- Type and extent of the fault
- Time and peripheral circumstances of the fault
- Presumed cause

7 Mounting Positions

7.1 General information about mounting positions

In the case of low backlash planetary gear units, SEW-EURODRIVE distinguishes between mounting positions M1 to M6. The following figure shows the spatial orientation of the gear unit in mounting positions M1 to M6.

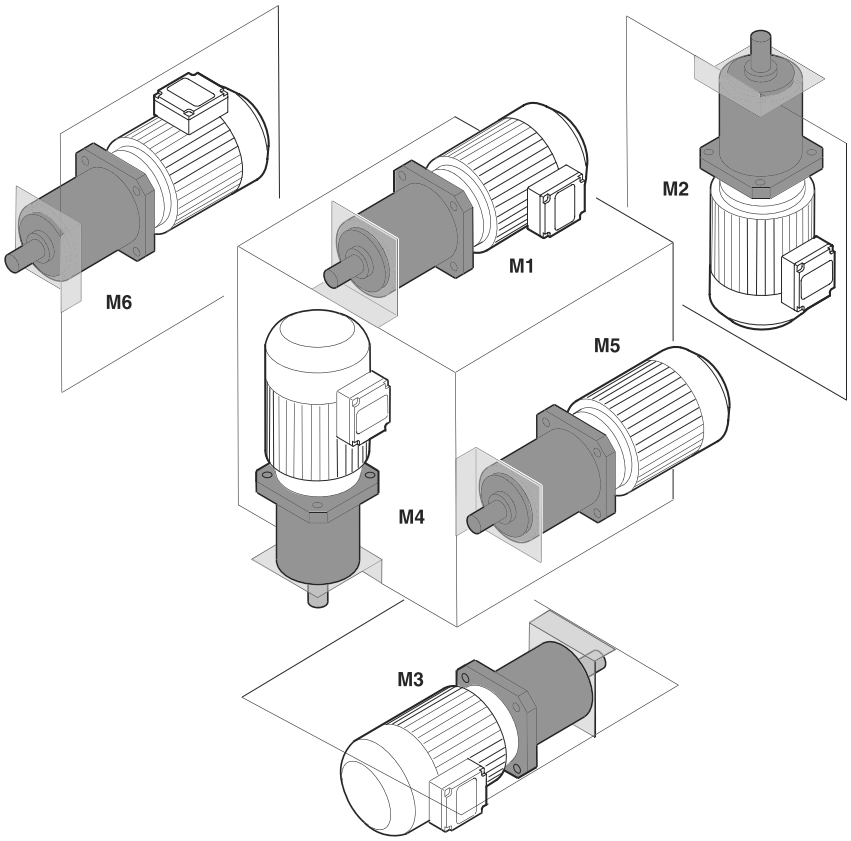

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Fig. 8: Representation of mounting positions M1 to M6 for low backlash planetary gear units

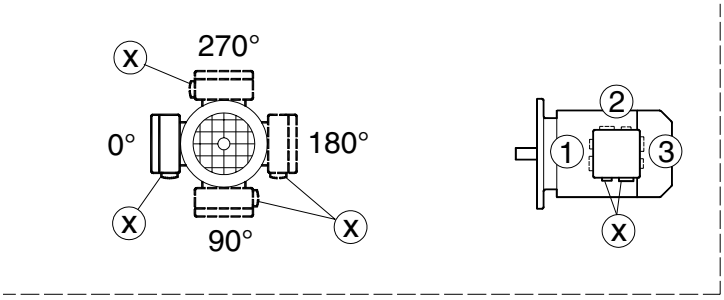
Symbols used

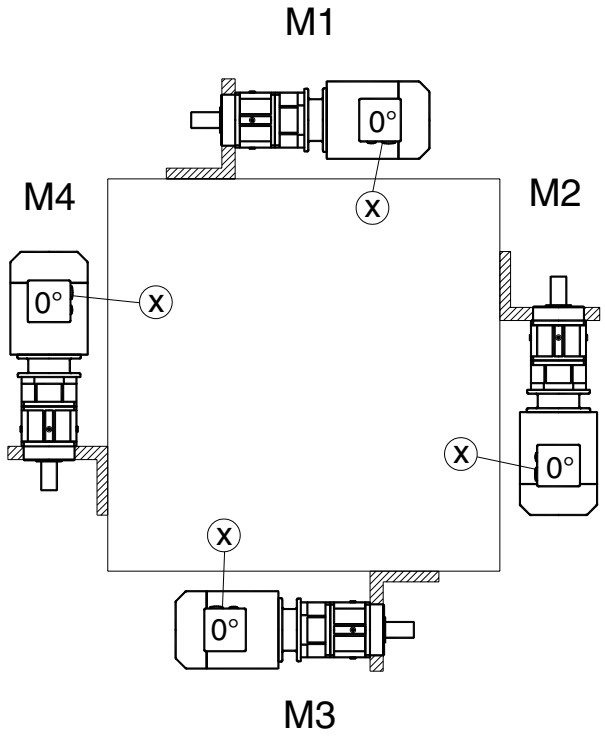
The following table shows which symbols are used in the mounting position sheets and what they mean:

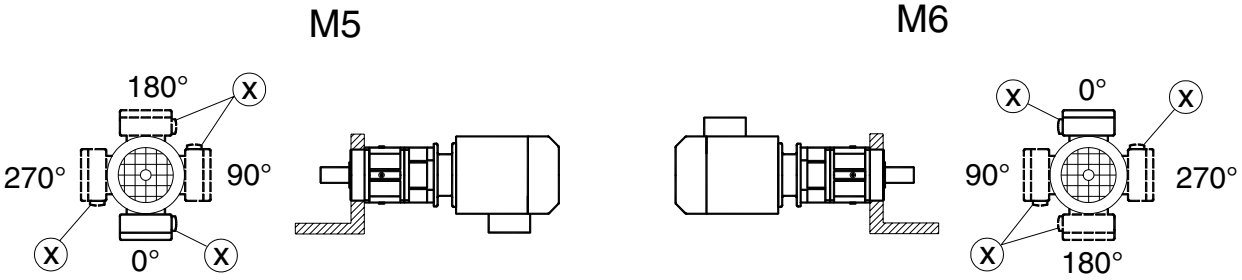
Symbol	Meaning
	No breather valve
	No oil level plug
	No oil drain plug

7.2 PSF211 – PSF902

44 001 000







M1 - M6

M1 - M6

M1 - M6

7.3 PSB311 – PSB612

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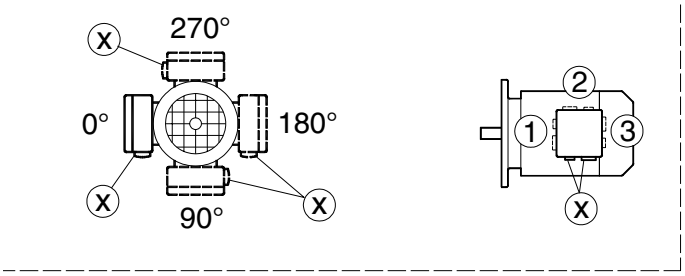
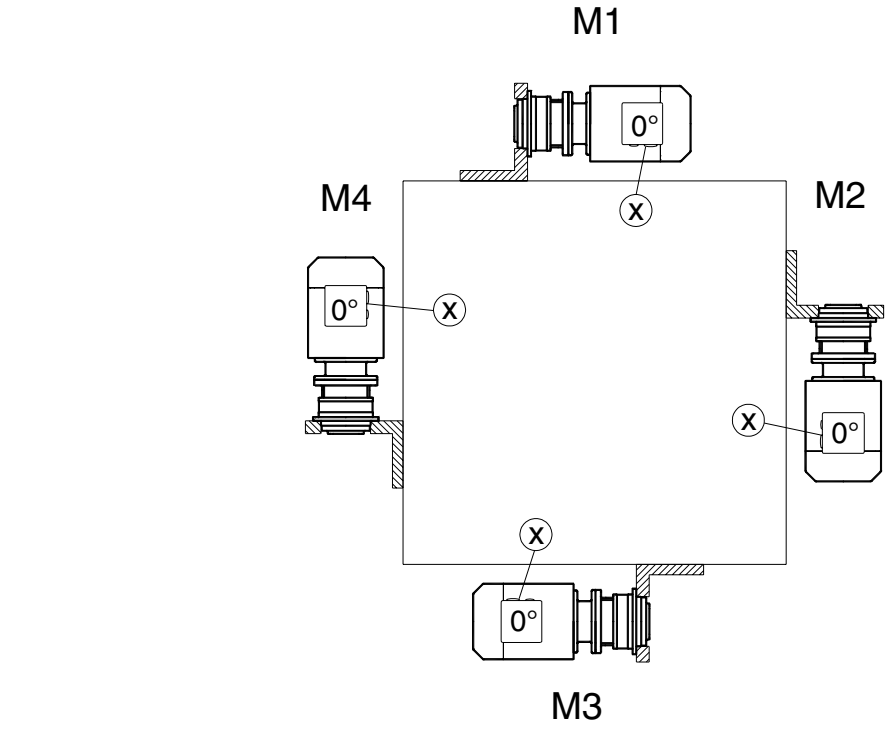
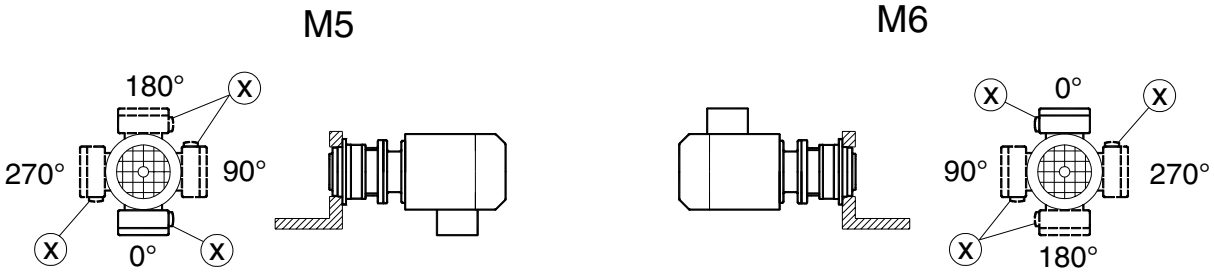






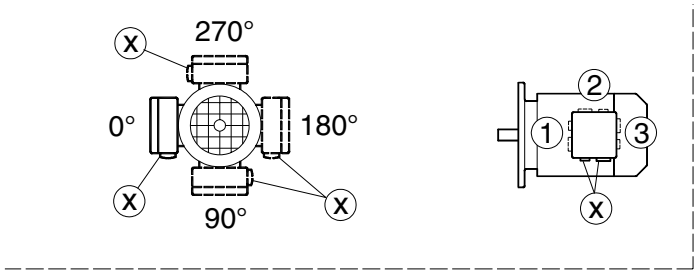
M1 - M6

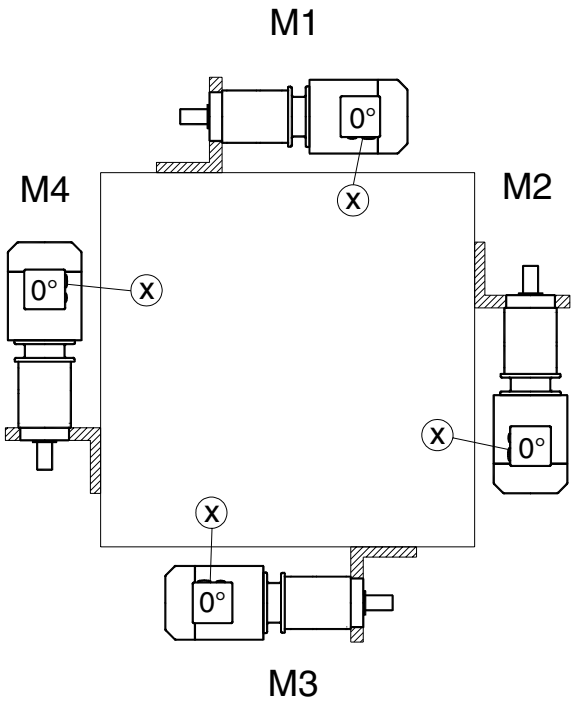
M1 - M6

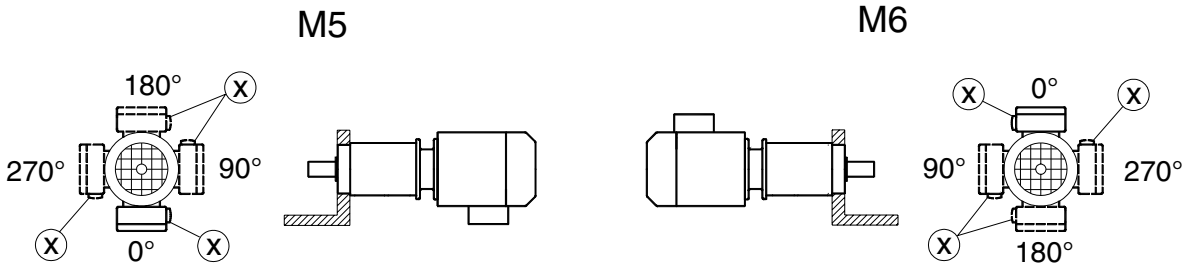
M1 - M6

7.4 PSE211 – PSE612

44 001 001





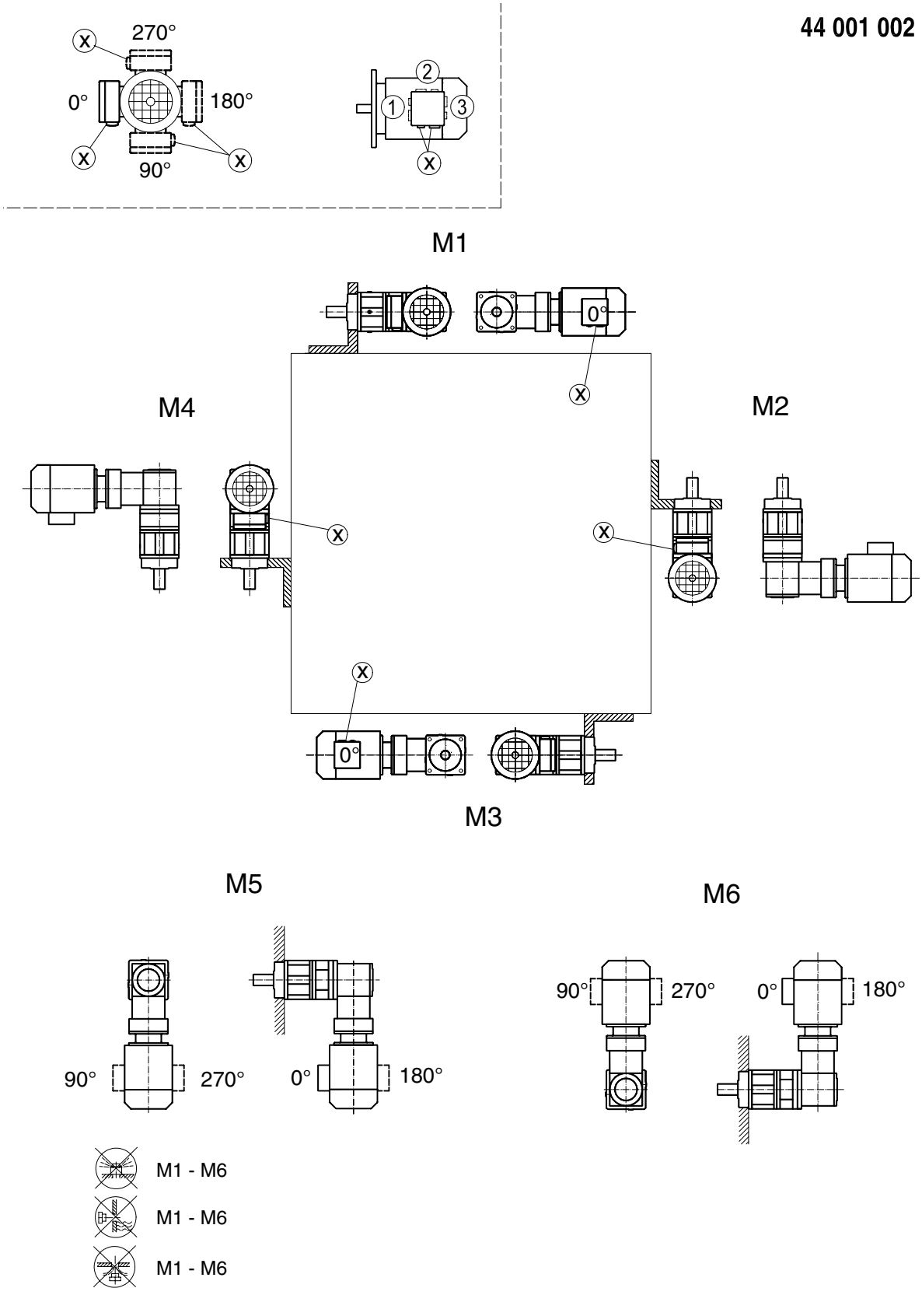


M1 - M6

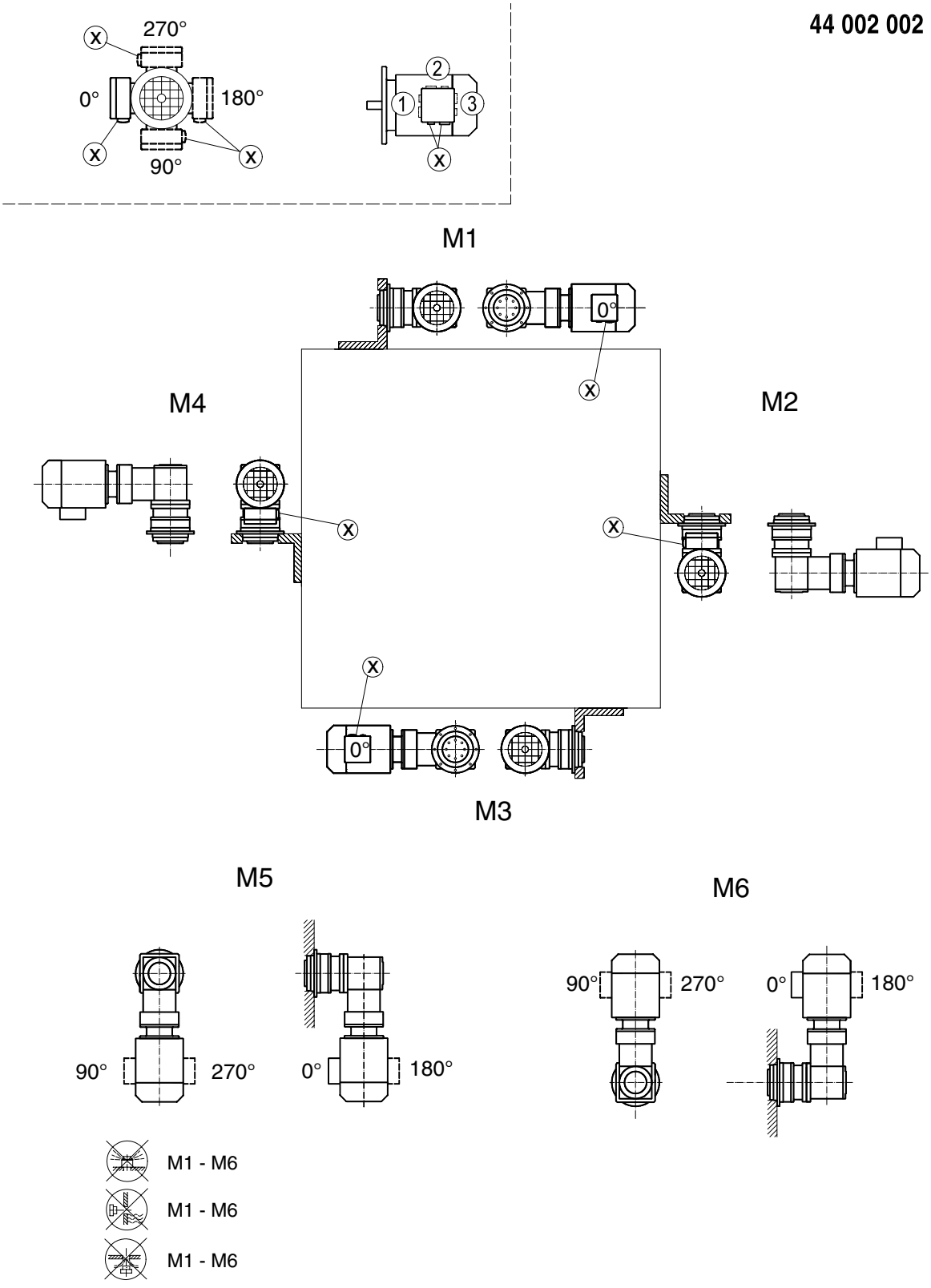
M1 - M6

M1 - M6

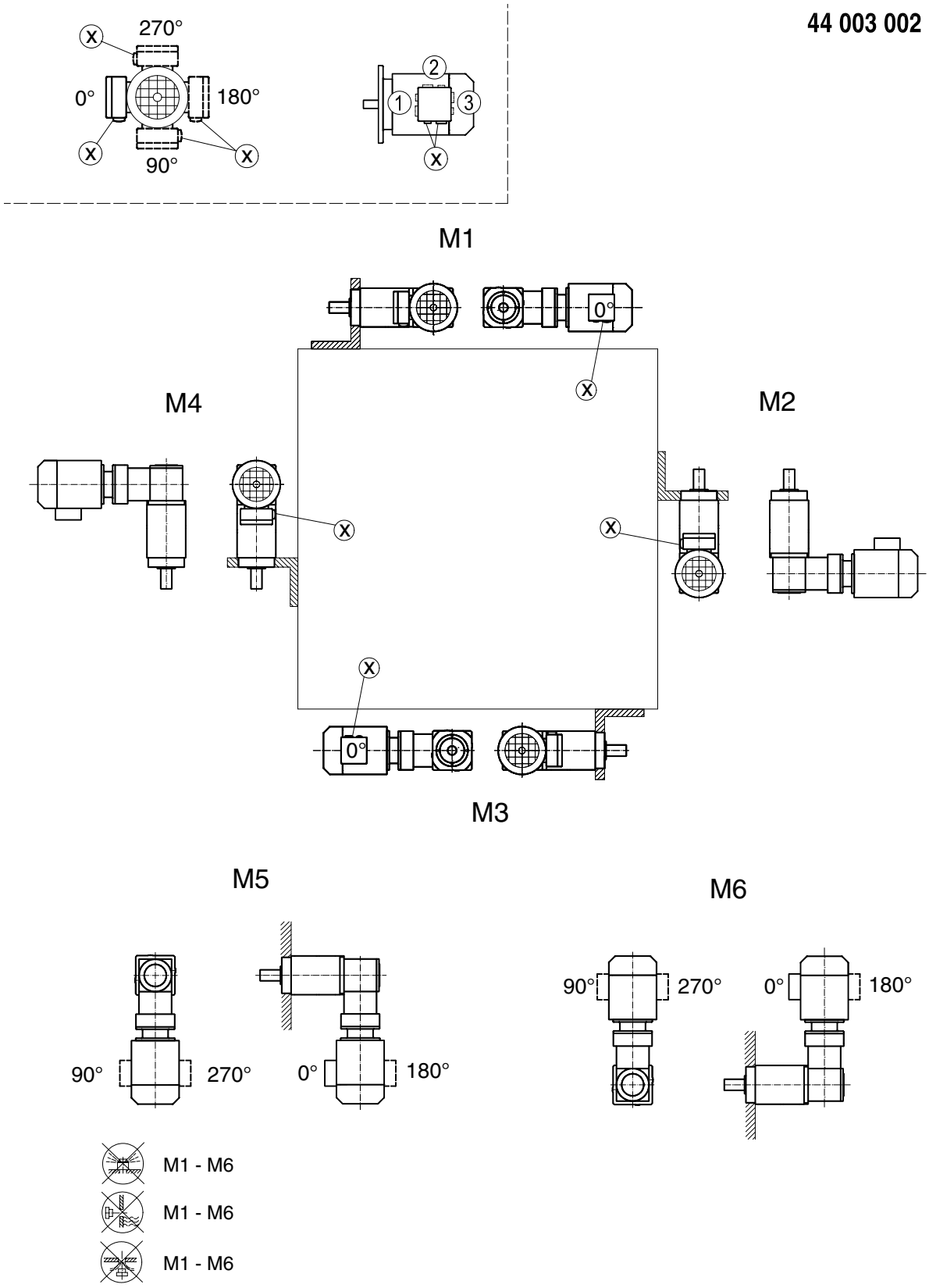
7.5 PSF211 VC.. – PSF802 VC..



7.6 PSB311 VC.. – PSB 612 VC..



7.7 PSE211 VC.. – PSE612 VC..



8 Lubricants

General information

Unless a special arrangement is made, SEW supplies the drives with a lubricant fill specifically for the gear unit and mounting position. The decisive factor is the mounting position (M1 – M6) specified when ordering the drive. You must adapt the lubricant fill to any subsequent changes made to the mounting position (→ Lubricant fill quantities).

The following lubricant table shows the permitted lubricants for SEW-EURODRIVE gear units.

- SEW-EURODRIVE planetary gear units are exclusively supplied filled with lubricants made by Tribol. Do not change to an alternative oil fill during the running-in phase.
- All listed lubricants are synthetic lubricants.
- Food-grade lubricants are available from SEW-EURODRIVE on request.

Lubricant table, gear unit grease

Key to the lubricant table:

K	= Greases for anti-friction bearings, sleeve bearings and sliding surfaces
P	= Upper gear unit temperature up to +160 °C
HC	= Synthetic hydrocarbons
HC/E	= Synthetic hydrocarbons + ester oil
1)	= Ambient temperature

	1) °C -20 0 +20 +40 +60	DIN 51502	ISO	Tribol	Mobil®	Shell	TEXACO
PSF 211/212... 311/312 PSB 311/312	-16 Standard +60	KP HC/E 2P-40	VG 220	Tribol 4747/220-2			
	-16 +60	KP HC 2N-30	VG 220		Mobilith SHC 220		
PSE 211/212... 611/612	-16 +60	KP HC/E 2R-30	VG 220			Stamina HDS2	
	-16 +60	KP HC 2P-30	VG 220				Polystar Synthetic 4602

Lubricant table, gear unit oil

Key to the lubricant table:

CLP PG	= Polyglycol
CLP HC	= Synthetic hydrocarbons
1)	= Ambient temperature

	1) °C -20 0 +20 +40 +60	Oil DIN (ISO)	ISO	Tribol	Mobil®	Shell	BP	TEXACO
PSF 411/412... 901/911 PSB 411/412... 611/612	-16 Standard +60	CLP PG	VG 220	Tribol 800/220				
	-16 +60	CLP HC	VG 220		Mobile SHC 630			
	-16 +60	CLP PG	VG 220		Mobile Glygoyle 30	Shell Tivaela WB	BP Energol SG-XP 220	Synlube CLP 220

8.1 Lubricant fill quantities, gear unit grease

Gear unit type	Fill quantity	
	1-stage [g]	2-stage [g]
PSF 211... / PSF 212...	13	20
PSF 311... / PSF 312...	18	30
PSB 311... / PSB 312...	16	25
PSE 211... / PSE 212...	8	12
PSE 311... / PSE 312...	15	22
PSE 411... / PSE 412...	25	45
PSE 511.../ PSE 512...	25	45
PSE 611... / PSE 612...	35	60

8.2 Lubricant fill quantities, gear unit oil

The following tables show recommended values for lubricant fill quantities depending on the mounting position M1 – M6.

PSB... single stage

PSB... single stage Oil fill quantity [ml]							
Gear unit type	i	M1	M2	M3	M4	M5	M6
411...	4	70	90	70	70	70	70
	5	70	90	70	70	70	70
	6	90	90	90	90	90	90
	7	90	90	90	90	90	90
	8	90	90	90	90	90	90
	9	90	90	90	90	90	90
	10	90	90	90	90	90	90
511...	4	70	90	70	70	70	70
	5	70	90	70	70	70	70
	6	90	90	90	90	90	90
	7	90	90	90	90	90	90
	8	90	90	90	90	90	90
	9	90	90	90	90	90	90
	10	90	90	90	90	90	90
611...	4	120	200	120	170	120	120
	5	120	200	120	170	120	120
	6	120	200	120	170	120	120
	7	120	200	120	170	120	120
	8	120	200	120	170	120	120
	9	120	200	120	170	120	120
	10	120	200	120	170	120	120

PSB... two stage

PSB... two stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
412...	16	130	180	130	180	130	130
	20	130	180	130	180	130	130
	21	130	180	130	180	130	130
	25	130	180	130	180	130	130
	30	130	180	130	180	130	130
	35	130	180	130	180	130	130
	36	130	180	130	180	130	130
	40	130	180	130	180	130	130
	45	130	180	130	180	130	130
	49	130	180	130	180	130	130
	56	130	180	130	180	130	130
	64	130	180	130	180	130	130
	72	130	180	130	180	130	130
	81	130	180	130	180	130	130
	100	130	180	130	180	130	130
512...	16	130	180	130	180	130	130
	20	130	180	130	180	130	130
	21	130	180	130	180	130	130
	25	130	180	130	180	130	130
	30	130	180	130	180	130	130
	35	130	180	130	180	130	130
	36	130	180	130	180	130	130
	40	130	180	130	180	130	130
	45	130	180	130	180	130	130
	49	130	180	130	180	130	130
	56	130	180	130	180	130	130
	64	130	180	130	180	130	130
	72	130	180	130	180	130	130
	81	130	180	130	180	130	130
	100	130	180	130	180	130	130

PSB... two stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
612...	16	340	350	340	330	340	340
	20	340	350	340	330	340	340
	21	340	350	340	330	340	340
	25	340	350	340	330	340	340
	30	340	350	340	330	340	340
	35	340	350	340	330	340	340
	36	340	350	340	330	340	340
	40	340	350	340	330	340	340
	45	340	350	340	330	340	340
	49	340	350	340	330	340	340
	56	340	350	340	330	340	340
	64	340	350	340	330	340	340
	72	340	350	340	330	340	340
	81	340	350	340	330	340	340
	100	340	350	340	330	340	340

PSF... single stage

PSF... single stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
411...	4	70	90	70	70	70	70
	5	70	90	70	70	70	70
	6	90	90	90	90	90	90
	7	90	90	90	90	90	90
	8	90	90	90	90	90	90
	9	90	90	90	90	90	90
	10	90	90	90	90	90	90
511...	4	60	60	60	60	60	60
	5	60	60	60	60	60	60
	6	80	80	80	80	80	80
	7	80	80	80	80	80	80
	8	80	80	80	80	80	80
	9	80	80	80	80	80	80
	10	80	80	80	80	80	80
611...	4	120	150	120	110	120	120
	5	120	150	120	110	120	120
	6	120	150	120	110	120	120
	7	120	150	120	110	120	120
	8	120	150	120	110	120	120
	9	120	150	120	110	120	120
	10	120	150	120	110	120	120

PSF... single stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
701...	4	170	300	170	180	170	170
	5	170	300	170	180	170	170
	6	170	300	170	180	170	170
	7	170	300	170	180	170	170
	8	170	300	170	180	170	170
	9	170	300	170	180	170	170
	10	170	300	170	180	170	170
801...	4	400	600	400	500	400	400
	5	400	600	400	500	400	400
	6	400	600	400	500	400	400
	7	400	600	400	500	400	400
	8	400	600	400	500	400	400
	9	400	600	400	500	400	400
	10	400	600	400	500	400	400
901...	4	750	1200	750	1000	750	750
	5	750	1200	750	1000	750	750
	6	750	1200	750	1100	750	750
	7	750	1200	750	1100	750	750
	8	750	1200	750	1100	750	750
	9	750	1200	750	1100	750	750
	10	750	1200	750	1100	750	750

PSF... two stage

PSF... two stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
412...	16	140	170	140	190	140	140
	20	140	170	140	190	140	140
	21	140	170	140	190	140	140
	25	140	170	140	190	140	140
	30	140	170	140	190	140	140
	35	140	170	140	190	140	140
	36	140	170	140	190	140	140
	40	140	170	140	190	140	140
	45	140	170	140	190	140	140
	49	140	170	140	190	140	140
	56	140	170	140	190	140	140
	64	140	170	140	190	140	140
	72	140	170	140	190	140	140
	81	140	170	140	190	140	140
	100	140	170	140	190	140	140

PSF... two stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
512...	16	130	160	130	180	130	130
	20	130	160	130	180	130	130
	21	130	160	130	180	130	130
	25	130	160	130	180	130	130
	30	130	160	130	180	130	130
	35	130	160	130	180	130	130
	36	130	160	130	180	130	130
	40	130	160	130	180	130	130
	45	130	160	130	180	130	130
	49	130	160	130	180	130	130
	56	130	160	130	180	130	130
	64	130	160	130	180	130	130
	72	130	160	130	180	130	130
	81	130	160	130	180	130	130
	100	130	160	130	180	130	130
612...	16	210	310	210	340	210	210
	20	210	310	210	340	210	210
	21	210	310	210	340	210	210
	25	210	310	210	340	210	210
	30	210	310	210	340	210	210
	35	210	310	210	340	210	210
	36	210	310	210	340	210	210
	40	210	310	210	340	210	210
	45	210	310	210	340	210	210
	49	210	310	210	340	210	210
	56	210	310	210	340	210	210
	64	210	310	210	340	210	210
	72	210	310	210	340	210	210
	81	210	310	210	340	210	210
	100	210	310	210	340	210	210
702...	16	250	450	250	550	250	250
	20	250	450	250	550	250	250
	21	250	450	250	550	250	250
	25	250	450	250	550	250	250
	30	250	450	250	550	250	250
	35	250	450	250	550	250	250
	36	250	450	250	550	250	250
	40	250	450	250	550	250	250
	45	250	450	250	550	250	250
	49	250	450	250	550	250	250
	56	250	450	250	550	250	250
	64	250	450	250	550	250	250
	72	250	450	250	550	250	250
	81	250	450	250	550	250	250
	100	250	450	250	550	250	250

PSF... two stage Oil fill quantity [ml]							
Gear unit type	**i**	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**
802...	16	750	1400	750	1450	750	750
	20	750	1400	750	1450	750	750
	21	750	1400	750	1450	750	750
	25	750	1400	750	1450	750	750
	30	750	1400	750	1450	750	750
	35	750	1400	750	1450	750	750
	36	750	1400	750	1450	750	750
	40	750	1400	750	1450	750	750
	45	750	1400	750	1450	750	750
	49	750	1400	750	1450	750	750
	56	750	1400	750	1450	750	750
	64	750	1400	750	1450	750	750
	72	750	1400	750	1450	750	750
	81	750	1400	750	1450	750	750
	100	750	1400	750	1450	750	750
902...	16	1500	2200	1500	2500	1500	1500
	20	1500	2200	1500	2500	1500	1500
	21	1500	2200	1500	2500	1500	1500
	25	1500	2200	1500	2500	1500	1500
	30	1500	2200	1500	2500	1500	1500
	35	1500	2200	1500	2500	1500	1500
	36	1500	2200	1500	2500	1500	1500
	40	1500	2200	1500	2500	1500	1500
	45	1500	2200	1500	2500	1500	1500
	49	1500	2200	1500	2500	1500	1500
	56	1500	2200	1500	2500	1500	1500
	64	1500	2200	1500	2500	1500	1500
	72	1500	2200	1500	2500	1500	1500
	81	1500	2200	1500	2500	1500	1500
	100	1500	2200	1500	2500	1500	1500

9 Revision Status

The following additions and changes have been made to the previous edition of the Planetary Gear Units operating instructions (publication number: 1051 4007 / 0301):

Sec. Setup and Installation

- The PSB gear unit has been added to Sec. Installation in the system.
- Sec. Mounting output elements has been revised.

Sec. Inspection and Maintenance

- Sec. Inspection and Maintenance has been completely revised.

Sec. Mounting Positions

- New mounting position sheets have been added.

Sec. Lubricants

- The new Sec. Lubricants has been added to the operating instructions.

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Germany			
Headquarters **Production** **Sales** **Service**	**Bruchsal**	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. Box Postfach 3023 · D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de Service Electronics: Tel. +49 171 7210791 Service Gear Units and Motors: Tel. +49 172 7601377
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	Meerane (near Zwickau)	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 D-08393 Meerane	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 scm-meerane@sew-eurodrive.de
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France			
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Assembly **Sales** **Service**	**Bordeaux**	SEW-USOCOME Parc d'activités de Magellan 62, avenue de Magellan - B. P. 182 F-33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Paris	SEW-USOCOME Zone industrielle 2, rue Denis Papin F-77390 Verneuil l'Etang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
	Additional addresses for service in France provided on request!		

Algeria			
Sales	**Alger**	Réducom 16, rue des Frères Zaghnoun Bellevue El-Harrach 16200 Alger	Tel. +213 21 8222-84 Fax +213 21 8222-84

Argentina			
Assembly **Sales** **Service**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar

Australia			
Assembly **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au

Austria			
Assembly **Sales** **Service**	**Wien**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://sew-eurodrive.at sew@sew-eurodrive.at

Belgium			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.caron-vector.be info@caron-vector.be

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 50 Caixa Postal: 201-07111-970 Guarulhos/SP - Cep.: 07251-250	Tel. +55 11 6489-9133 Fax +55 11 6480-3328 http://www.sew.com.br sew@sew.com.br
	Additional addresses for service in Brazil provided on request!		

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GMBH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 (2) 9532565 Fax +359 (2) 9549345 bever@mbox.infotel.bg

Cameroon			
Sales	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 4322-99 Fax +237 4277-03

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.reynolds@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta. B.C. V4G 1 E2	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Street LaSalle, Quebec H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew-eurodrive.ca
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Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 sewsales@entelchile.net

China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 http://www.sew.com.cn
Assembly **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021 P. R. China	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew.com.cn

Colombia			
Assembly **Sales** **Service**	**Bogotá**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 sewcol@andinet.com

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. PIT Erdödy 4 II HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@net.hr

Czech Republic			
Sales	**Praha**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Luná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 220121234 + 220121236 Fax +420 220121237 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz

Denmark			
Assembly **Sales** **Service**	**Kopenhagen**	SEW-EURODRIVEA/S Geminivej 28-30, P.O. Box 100 DK-2670 Greve	Tel. +45 43 9585-00 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Paldiski mnt.125 EE 0006 Tallin	Tel. +372 6593230 Fax +372 6593231

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 3 589-300 Fax +358 3 7806-211 http://www.sew-eurodrive.fi sew@sew-eurodrive.fi

Gabon			
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Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk

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Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 sew-eurodrive.voros@matarnet.hu

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New Zealand			
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	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 385-6455 sales@sew-eurodrive.co.nz

Norway			
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Peru			
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Poland			
Assembly **Sales** **Service**	**Lodz**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Lodz	Tel. +48 42 67710-90 Fax +48 42 67710-99 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl

Portugal			
Assembly **Sales** **Service**	**Coimbra**	SEW-EURODRIVE, LDA. Apartado 15 P-3050-901 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt

Romania			
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Russia			
Sales	**St. Petersburg**	ZAO SEW-EURODRIVE P.O. Box 263 RUS-195220 St. Petersburg	Tel. +7 812 5357142 +812 5350430 Fax +7 812 5352287 sew@sew-eurodrive.ru

Senegal			
Sales	**Dakar**	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 849 47-70 Fax +221 849 47-71 senemeca@sentoo.sn

Singapore			
Assembly **Sales** **Service**	**Singapore**	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 ... 1705 Fax +65 68612827 Telex 38 659 sales@sew-eurodrive.com.sg

Slovenia			
Sales **Service**	**Celje**	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 SLO – 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

South Africa			
Assembly **Sales** **Service**	**Johannesburg**	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 494-2311 ljansen@sew.co.za
	Capetown	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442 Cape Town	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 dswanepoel@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaceo Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 700-3451 Fax +27 31 700-3847 dtait@sew.co.za

Spain			
Assembly **Sales** **Service**	**Bilbao**	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 9 4431 84-70 Fax +34 9 4431 84-71 sew.spain@sew-eurodrive.es

Sweden			
Assembly **Sales** **Service**	**Jönköping**	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 3442-00 Fax +46 36 3442-80 http://www.sew-eurodrive.se info@sew-eurodrive.se

Switzerland			
Assembly **Sales** **Service**	**Basel**	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 41717-17 Fax +41 61 41717-00 http://www.imhof-sew.ch info@imhof-sew.ch

Thailand			
Assembly **Sales** **Service**	**Chon Buri**	SEW-EURODRIVE (Thailand) Ltd. Bangpakong Industrial Park 2 700/456, Moo.7, Tambol Donhuaroh Muang District Chon Buri 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.co.th

Tunisia			
Sales	**Tunis**	T. M.S. Technic Marketing Service 7, rue Ibn EI Heithem Z.I. SMMT 2014 Mégrine Erriadh	Tel. +216 1 4340-64 + 1 4320-29 Fax +216 1 4329-76

Turkey			
Assembly **Sales** **Service**	**Istanbul**	SEW-EURODRIVE Hareket Sistemleri Sirketi Bagdat Cad. Koruma Cikmazi No. 3 TR-81540 Maltepe ISTANBUL	Tel. +90 216 4419163 + 216 4419164 + 216 3838014 Fax +90 216 3055867 sew@sew-eurodrive.com.tr

USA			
Production **Assembly** **Sales** **Service**	**Greenville**	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manuf. +1 864 439-9948 Fax Ass. +1 864 439-0566 Telex 805 550 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly **Sales** **Service**	**San Francisco**	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, California 94544-7101	Tel. +1 510 487-3560 Fax +1 510 487-6381 cshayward@seweurodrive.com
	Philadelphia/PA	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 467-3792 csbridgeport@seweurodrive.com
	Dayton	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Dallas	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Additional addresses for service in the USA provided on request!		

Venezuela			
Assembly **Sales** **Service**	**Valencia**	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 sewventas@cantv.net sewfinanzas@cantv.net

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